IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE MAGNAVOX COMPANY, et al,)
)
Plaintiffs,)
) Consolidated Civil Action Nos.
vs.) 74 C 1030
) 74 C 2510
BALLY MANUFACTURING CORPORATION,) 75 C 3153
et al,) 75 C 3933
)
Defendants.)

DEPOSITION OF THOMAS J. SPENCE

Taken in behalf of defendants

May 24, 1976

MICHELET, SOWERS, JOHNSON, KIRK & COMPANY

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE MAGNAVOX COMPANY, et al,)
)
Plaintiffs,)
) Consolidated Civil Action
vs.) Nos. 74 C 1030
) 74 C 2510
BALLY MANUFACTURING CORPORATION,) 75 C 3153
et al,) 75 C 3933
)
Defendants.)

DEPOSITION OF THOMAS J. SPENCE

Taken in behalf of defendants

BE IT REMEMBERED That, pursuant to notice, the

deposition of THOMAS J. SPENCE was taken in behalf of

defendants Atari, Inc. and Sears, Roebuck & Co., before

Verne R. Sowers, a Notary Public for Oregon, on Monday,

May 24, 1976, beginning at the hour of 10:10 a.m. in the

law offices of Chernoff & Vilhauer, Oregon National Build-

ing, Portland, Oregon.

APPEARANCES:

Mr. Theodore W. Anderson,

    of attorneys for plaintiff;

Mr. Edward S. Wright, of attorneys for defendants Atari,

    Inc., and Sears, Roebuck & Co.

- - - - -

1   program in September of 1967, and as I recall, at that

2   time I felt the program was complete, but it would have

3   been written during a period of time anywhere from three

4   to four months before that in various stages of complete-

5   ness.

6   Q   Now, I believe you testified that that program was

7   written to play baseball on a console of the Control Data

8   6000 computer system. Would you describe the console?

9   A   The console comprised two CRT's, cathode ray tubes,

10   and a typewriter-like keyboard, set into a desk-type

11   apparatus.

12   Q   What was the function of the two CRT's?

13   A   The two CRT's could display alpha numeric information,

14   transmitted to it by the operating system. This informa-

15   tion could include data stored within the computer or

16   messages to the operator.

17   Q   What was the function of the keyboard?

18   A   The keyboard was the input device used by the operator

19   to communicate with the operating system.

20   Q   To your knowledge was the baseball program you wrote

21   ever run on the 6000 series computer?

22   A   It was run by me several times, because the actual

23   writing of the program required numerous operations of the

24   program on the computer.

25   Q   Do you recall when the program was first run on the

computer?

A.   As close as I can recall, it would have been sometime during the summer of 1967.

Q   Did anyone beside yourself observe the running or operation of the program on the computer?

MR. ANDERSON: I object as asking for hearsay and speculation, lacking in a foundation.

Q   (By Mr. Wright) Mr. Spence, I would suggest that you limit the response to instances to which you are personally familiar.

A.   Well, the people who would work on the same machine that I did watched the program run. There were several people who knew I was writing the program, and they watched it run.

Q   Would you describe for us what a person observing the screen would see when the program was run?

MR. ANDERSON: I object to the question as asking for the witness to speculate on the visual acuity of some ill-defined person.

MR. WRIGHT: Well, let's put it this way, Mr. Anderson:

Q   Mr. Spence, would you describe for us what you observed on the screen of the CRT when the program was run? And in this regard it may be helpful for you to make a drawing.

1   A.   The Control Data console, as we mentioned earlier,

2   had two CRT's. There was a left CRT and a right CRT, and

3   then a keyboard built into a desk-like structure at which

4   the operator sat to communicate with the operating system.

5   Q.   Will you label each of those elements, please?

6   A.   I'll put an "L" under the left display, and an "R"

7   under the right display, and a "K" under the keyboard;

8   and then if I were to draw the left display and right

9   display larger, on the left display there was shown a

10   baseball diamond with all of the bases and home plate.

11   There were players composed of alpha numeric characters

12   stationed at appropriate positions around the diamond,

13   if I could just mark those with X's to show their approxi-

14   mate position. There would have been a first baseman, a

15   second baseman, a short stop, and a third baseman, a

16   center fielder, a right fielder, a left fielder, a pitcher

17   and a catcher. And there was also displayed at the left

18   of home plate a vertical line representing a bat.

19   On the right display screen there was displayed

20   a score board, and as I recall, below the score board

21   there were areas for recording the outs and the runs and

22   the strikes and the balls, and I believe the score board

23   had entered into it "Visitors" and "Home Team," or some-

24   thing of that order. There was space for nine innings,

25   and then at the right-hand side of the score board there

1   would have been an area to store accumulated scores in

2   case the game went more than nine innings.

3   Q   How was the diamond itself represented on the display?

4   A   The diamond was shown as a home plate and three

5   bases, all interconnected by a peripheral line indicating

6   the base lines.

7   Q   Were any other lines displayed?

8   A   Not that I recall.

9   Q   Were there any foul lines?

10   MR. ANDERSON: I object. The witness has

11   testified he doesn't recall any other lines.

12   Q   (By Mr. Wright) You may answer, if you recall.

13   A   The line from home plate to first base served as

14   the right foul line, and the line from home plate to

15   third base would have served as the left foul line. That

16   line was not extended beyond those respective bases.

17   Q   I believe you stated that you used alpha numeric

18   characters to represent the players?

19   A   Yes.

20   Q   Do you remember what any of those representations

21   looked like?

22   A   They would have been made mainly from letters, and

23   as I recall, I might have used ----

24   MR. ANDERSON: I object to the witness speculat-

25   ing as to what he might have done.   MS042545

2 50951

A   As I recall, the characters were made using an

"A" for their legs, an "I" for their body. One character

particularly used a "U" for arms and an "O" for a head.

Q   Which character was that?

A   That was the pitcher. Other characters would have

used a "M" in place of the "U" for the players' arms.

Q   Were any of the characters animated?

A   The pitcher was animated.

Q   In what way was the pitcher animated?

A   The "U" showing the arms, upturned arms, the left

branch of that "U" was used to depict the right arm of the

pitcher; a ball, comprising the letter "O" was placed

above that left branch of the "U," and as the ball was

pitched the "U" was transformed into a "J," which had

the effect of dropping the right arm of the pitcher, in-

dicating the ball was thrown.

Q   How did you cause the ball to be pitched or thrown?

MR. ANDERSON: I object to the question. I

understood the line of questioning to be with respect to

what this witness observed on a screen, and if you have

changed the line of questioning, I think the record should

be clear on what the witness is testifying about; and,

also, I think it's objectionable in that it lacks a founda-

tion. There is no fixing of the time when any of these

particular aspects were actually observed, on what date,

1 with whom present, or anything of that sort. I object to

2 the line of questioning on that ground.

3   MR. WRIGHT: Well, Mr. Anderson, since you

4 raised the question, before we leave the description of

5 what was shown on the screen and what was observed on the

6 screen, when did you observe what you have just described

7 on the screen, Mr. Spence?

8 A   Depending on the developmental stage of the program,

9 it would have been sometime during the summer of 1967.

10 When I started writing the program, I started with the

11 base lines and then the players, and whenever the players

12 actually entered the program, that's when the pitcher and

13 other players would have been observable.

14 Q.   How did you cause the ball to be pitched or thrown?

15 A.   By depressing the "P" key on the keyboard, "P"

16 standing for pitch. The ball would then leave the pitcher's

17 right hand and move vertically downward.

18 Q   What happened next?

19 A.   Well, as I mentioned earlier, there was a vertical

20 line displayed just to the left of home plate, and upon

21 depressing the "S" key for swing, this line would rotate

22 in a counterclockwise direction, passing over home plate

23 and ending vertically upward. As the ball moved downwardly

24 from the pitcher toward the catcher, the "S" key could be

25 depressed to swing the bat at any time. If the bat was not

1   swung, there was a provision in the program to generate

2   a random number to determine if the pitched ball was to

3   be a strike or a ball. If the bat was swung, at the time

4   it reached a horizontal position across the plate, the

5   program would check the position of the ball, and depend-

6   ing where the ball was relative to the center of home

7   plate, the ball would then appear to be hit, either to

8   the right of the screen, to the left of the screen or to

9   any of several positions in between.

10   Q   What do you mean when you say the ball appeared to

11   be hit?

12   A   Well, if I can draw an enlarged view of home plate ----

13   MR. ANDERSON: Again, I object to this line of

14   questioning as unfixed in time, lacking in a foundation.

15   · MR. WRIGHT: Mr. Anderson, I think the record is

16   pretty clear that we are talking about December of 1967.

17   There's been no testimony with regard to this program at any

18   other time.

19   MR. ANDERSON: Mr. Wright, you can make all

20   the speeches you want about interpreting the testimony.

21   I am stating my objection.

22   Q   (By Mr. Wright) Well, Mr. Spence, I will ask you

23   to confine your responses at this point to what actually

24   did happen during the period that you have described as

25   being the summer of 1967, and I will ask you if the testimony

1   you have given so far with respect to the baseball game

2   has included any other period?

3   A.   No, my description of the program to this point in-

4   cludes everything that was available and operating prior

5   to -- I take that back -- during the summer of 1967, at

6   least on or before the middle of September of that year.

7   Q   Now, I think my question prior to Mr. Anderson's

8   objection was what you meant when you said the ball ap-

9   peared to be hit?

10   A.   Well, I have drawn an enlarged representation of

11   home plate, and I will show a vertically depending line

12   along the left side of home plate, and I will put an "X"

13   at the top of that line, although no "X" appeared on the

14   screen.

15   When the "S" key was depressed, the bat would

16   swing in a counterclockwise position across home plate,

17   and when it reached a horizontal position extending across

18   home plate, the program would look to see where the ball

19   was, the ball having been released earlier from the pitcher

20   and now moving downwardly toward the catcher. If the ball

21   fell within a range of positions above or below the bat,

22   the computer program would then move the ball across the

23   screen, toward the left of the screen if the ball was

24   above the bat or toward the right of the screen if the

25   ball was below the bat. The bat would then continue on

1   its movement, reaching a vertical position directly above

2   its original position. The computer program was sufficiently

3   fast that it was indiscernable that the bat ever stopped,

4   and it appeared to swing continuously from its original

5   position to its final position, and the ball appeared to

6   glance off of the bat just as it would in an actual base-

7   ball game.

8   Q   Would you please label the drawing you made of the

9   pitcher character?

10 A   (Witness complies.) I'll write "pitcher" right

11 below that character.

12 Q   And then would you label the bat, please, in the

13 view where you have shown the enlarged drawing of home

14 plate?

15 A   (Witness complies.) I have written "bat" and a

16 lead line directed to the vertical line in its original

17 position.

18 Q   What did you observe on the screen after the ball

19 glanced off the bat or was hit?

20 A   The ball would then travel across the screen as if

21 it had been hit from the batter's position. If it struck

22 one of the displayed players around the baseball diamond,

23 it would then disappear and be recorded as an out on the

24 right-hand screen. If it passed between those players,

25 between any two of those players, it would be recorded as

1   a hit, either a single, double, triple or home run. If it

2   went to the right of the line connecting home plate and

3   first base, it would be recorded as a foul ball, and if it

4   went to the left of the line connecting home plate with

5   third base, it would also be recorded as a foul ball.

6   Q   Was there any movement of the fielders or players

7   displayed on the screen other than the movement of the

8   pitcher that you have already described?

9   A   No, all of the other players were stationary.

10   MR. WRIGHT: I will ask that the reporter mark

11   the drawing which Mr. Spence has just made and described

12   as Atari's Exhibit No. 253.

13   MR. ANDERSON: I object to the document as

14   hearsay and improper testimony.

15   (Diagram marked Atari Deposition

16   Exhibit No. 253.)

17   MR. WRIGHT: Now I will ask that the reporter

18   mark a document having something on the order of 38 pages,

19   the first of which is entitled "Program Abstract Cover

20   Sheet," as Atari Exhibit No. 254.

21   (Document marked Atari Deposition

22   Exhibit No. 254.)

23   Q   (By Mr. Wright) Now, Mr. Spence, before we proceed

24   with testimony concerning Exhibit 254, we might put a few

25   more labels on that drawing to help make it clear what it

1   is. Would you label the console, if it appears in that

2   drawing, as "Console" or another label that you think is

3   appropriate?

4   A.   The console appears in the upper left-hand corner

5   of the drawing and has been labeled as such.

6   Q   And I think the only unlabeled figure left, then,

7   is the enlarged view of the home plate area. Would you

8   put some kind of a label on that figure?

9   A.   (Witness complies.) I have labeled it as "Enlarged

10   view of home plate area."

11   Q   What is the line that extends vertically down across

12   home plate?

13   A.   That line is the path of travel of the ball as it

14   moves from the pitcher to the catcher.

15   Q   Would you label that line, please?

16   A.   (Witness complies.) I have labeled that as "Ball

17   path from pitcher to catcher."

18   Q   What is the line which extends horizontally across

19   the plate?

20   A.   That is the position of the bat at the time that

21   the program checks for the position of the ball.

22   Q   Would it be appropriate to label that line "Bat 1"?

23   MR. ANDERSON: I object. You're leading the

24   witness and testifying. You can put the labels on it

25   yourself, if you want to, Mr.Wright. I won't object.

1   MR. WRIGHT: Well, I'd like to put some kind

2 of a label on so that there will be no doubt what it is.

3 I'm not sure that my suggestion is the best one.

4   A.   If you're interested in the three positions shown

5 on the drawing, we could label the starting position as

6 B-1, the horizontal position as B-2, and the ending posi-

7 tion as B-3.

8   Q   Okay, would you please do so?

9   A.   (Witness complies.)

10   Q   Were those the only positions that the bat actually

11 occupied on the screen?

12   A.   No, there were several positions displayed sequentially

13 to give the impression of a moving object.

14   Q   Now, Mr. Spence, I hand you the document which has

15 previously been marked as Exhibit No. 254.

16   MR. ANDERSON: I object to your placing that

17 exhibit before the witness, and any questions whatsoever

18 concerning it. It's lacking in a foundation, and hearsay.

19   Q   (By Mr. Wright) Would you please examine that

20 document, Mr. Spence?

21   MR. ANDERSON: I will repeat, as I did on

22 Friday and Saturday, Mr. Wright, that in my judgment and

23 opinion -- and I will raise this, naturally, with the

24 Court -- your procedure is grossly improper. There is

25 no proper basis under the Federal Rules for laying a

document before the witness and asking him to review it, study it, comment upon it, refer to it, discuss it or testify about it, and any testimony and the document itself are hearsay, and I object to them, and I object to your procedure and I will seek to prevent you from using this improperly taken testimony.

MR. WRIGHT: Well, Mr. Anderson, I intend to ask the witness if he is familiar with the document or if he recognizes it, and it's a little hard to do unless he's had an opportunity to look at it as you have.

Q   (By Mr. Wright) Mr. Spence, do you recognize the document that has been identified as Atari Exhibit No. 254?

A.   The body of the document appears to comprise a program listing of the baseball game as I wrote it, and the remaining documents refer to that program.

MR. WRIGHT: In order to be absolutely clear what we are talking about, I will ask the reporter to mark the pages of this document, the first page being Exhibit 254-1, and then number the remaining pages sequentially.

(Atari Deposition Exhibit 254 remarked 254-1 through 254-39.)

Q   (By Mr. Wright) Now, Mr. Spence, I believe you previously testified that a portion of the document marked

Q   (By Mr. Wright) Do you know why that date was used

in Exhibit 254, page 1, Mr. Spence?

A   No, I do not.

Q   Is that the date on which you wrote the program itself?

A   No, it is not.

MR. WRIGHT: I believe that's all the questions

we have on direct.

CROSS-EXAMINATION

BY MR. ANDERSON:

Q   Mr. Spence, does the console of the equipment

that you were working on have any specific designation

of model or number?

A   It does. I believe it was 6612 or 6602, although

I can't be sure. It would have been a 66,000 number of

some kind.

Q   You mean 6600?

A   Yes.

Q   Was the 6600 equipment under development at the time

you were working with it in 1967 and 1968?

A   In the sense that a computer system is always under

development, but the 6400 series system and the 6600 series

system were being sold and shipped at that time as fully

MS042568

2 50977

developed machines.

Q   Was the 6612 a console that you know existed, or is your doubt about the number and not about the particular console's identity?

A   I have no doubt about the console. The console was used at that time on both 6400 and 6600 series machines.

Q   The same console?

A   Yes.

Q   Was there more than one console?

A   They came out with an improved version, but it was essentially the same console as far as the operator was concerned.   It had two CRT's and a keyboard.   It was just that one looked better than the other one.

Q   Did both have two CRT's and a keyboard?

A   Yes.

Q   When did the improved version come out?

A   It was while I was a checkout engineer, which would have been sometime during 1967.

Q   What size were the CRT's?

A..   As a guess, I'd say 14 inches in diameter.

Q   Do you know whether they were electrostatic or electromagnetic deflection?

A   I believe they were electrostatic, but I can't say specifically.

Q   Were they used primarily as point plotting displays?

1   A.   No, they were used primarily to display alpha

2   numeric information.

3   Q   How was an alpha numeric character generated on the

4   screen?

5   A.   In the display driver, which was a section of the

6   main frame, there were character generators, and as a

7   code was sent from the main frame to a specific character

8   generator, a signal would be sent to the console generat-

9   ing that character.

10   Q   Do you know any more specifically how the character

11   generator drove the display? Did it, for example, draw

12   an "A"? Did it draw first the left leg and then the right

13   leg and cross it?

14   A.   That's exactly what it did.

15   Q   You mean I guessed right?

16   A.   Right on the nose.

17   Q   And in each case that it drew a character, did it

18   draw one line of the character and then the other line?

19   A.   Yes.

20   Q..   Until the whole character was generated?

21   A.   Yes.

22   Q   Do you know how long it would take to draw an

23   "A," for example, with the 6000 series displays?

24   A.   No, I do not.

25   Q   Do you have any knowledge at all, any range of values?

1   A.   It would be very fast, because you can -- well, I

2   couldn't guess, but the display must be refreshed

3   continually, and you can put a large number of characters

4   on the screen and keep them refreshed, so it would take

5   a small fraction of the refreshing period to generate

6   each character, but I couldn't narrow it down as far as

7   quantity.

8   Q   Do you have any knowledge as to persistence of the

9   screen?

10   A.   No, I do not.

11   Q   Do you have any knowledge of the frequency with

12   which it was necessary to refresh the characters?

13   A.   Not quantitatively. I know that when you're pro-

14   gramming the display, you must in your program make

15   provision to refresh the display every so often, which

16   is rather vague, or else it will begin to blink at you;

17   and I know that when I was writing this baseball program,

18   that during the development I had to make sure that the

19   screen was refreshed to keep the screen from either going

20   dim or from actually blinking.

21   Q   How often did you refresh in your baseball program,

22   if you recall?

23   A.   I can't recall.

24   Q   Do you know whether it was more often than once

25   a second?

1   A   I would say yes, because when the screen did blink

2   it blinked much more rapidly than once a second.

3   Q   Do you own a television receiver?

4   A   Yes.

5   Q   When did you first own a television receiver, to

6   the best of your recollection?

7   A   Nineteen sixty -- my own personal television, 1964,

8   as I can best recall.

9   Q   Are you familiar with the technique by which a

10   picture is generated on the face of a television screen?

11   A   Vaguely.

12   Q   Are you aware that it's generated by a series of

13   roughly 500 lines that are continuously generated and

14   regenerated?

15   A   Yes.

16   Q   Do you know the name for that kind of display,

17   picture display?

18   A   I believe it's called a raster.

19   Q   A raster scan?

20   A   Right.

21   Q   Did the CDC, Control Data, 6000 series displays in

22   the time you were working on them in '67 employ a raster

23   scan?

24   A   Not the one we have been talking about as the

25   console for the 6000 series machine.   MS042572

1   Q   Do you know how much a 6000 series machine with the

2   display console sold for, roughly?

3   A   I can only guess. Six thousand series machines

4   were sold as systems, which included not only the main

5   frame of the console but peripheral input-output devices

6   such as card readers, card punches, magnetic tape drives,

7   and the like; and those systems, just to pick a number,

8   sold for millions. I would say two, three million dollars,

9   four million dollars, per system.

10   Q   Do you know what the console and display alone, the

11   peripheral that you used, sold for?

12   A   No, I can't recall.

13   Q   Can you state, and if so will you state, roughly the

14   cost of renting the minimum amount of equipment that would

15   be necessary to display your baseball program in terms of

16   per hour or per month, or whatever you might know?

17   A   I can't recall that, either.

18   Q   Would it be hundreds of dollars per hour?

19   A   Yes.

20   Q   Now, you said the bat assumed several positions in

21   your program. Do you recall how many positions?

22   A   Yes, it assumed nine positions.

23   Q   And as I understood your testimony, you made one

24   check with your program when the bat was in the position

25   B-2 to determine whether the bat would cause the ball to

1   be hit or not, is that true?

2   A   Yes.

3   Q   And depending upon whether the ball was at that time

4   down at the bottom of the ball trajectory that you have

5   marked "ball path" or at the top of that path at the time

6   the bat was in position B-2 would determine the direction

7   at which the ball appeared to leave the home plate area,

8   is that correct?

9   A   It was the position of the ball within a defined

10 distance above or below the bat.

11 Q   And is that defined position between the two little

12 ticks that you have put on the line you marked "ball path"?

13 A   Approximately.

14 Q   Was the ball in your program a single spot?

15 A   No, the ball was an "O." As I recall, it was a

16 lower case -- I take that back. We didn't have upper and

17 lower case. We had three different character sizes,

18 all capital letters, for example, and it would either

19 have been the smallest or the middle character size

20 "O."

21 Q   And your program used the character generator for

22 that purpose, did it?

23 A   Yes.

24 Q   You testified, I believe, that to determine whether

25 your program would indicate a "ball" or a "strike" you used

MS042574

1   a random number system?

2   A   Yes.

3   Q   It didn't matter then where the ball appeared to

4   cross the plate but was just a matter of a random selec-

5   tion?

6   A   Yes.

7   Q   Now, with respect to Atari Exhibit 254, you testified

8   that you did not prepare pages 1 or 2 and that you did

9   not prepare pages 37, 38 and 39, is that correct?

10   A   That is correct.

11   Q   Did you personally prepare the pages which have been

12   marked by the reporter as 254-3 through 254-36?

13   A   No, I did not.

14   Q   Do you know who did?

15   A   No, I do not.

16   Q   In the entry that Mr. Wright asked you about in

17   Atari Exhibit 255, there is reference to "language," and

18   after that there is a hyphen, and it reads "COMPASS

19   PERIPH." What does that "COMPASS PERIPH" refer to?

20   A   "Compass" is the assembler language for the peripheral

21   processors of the 6000 series computer system, which, as

22   you recall, has a large central processor and ten peripheral

23   processors.

24   Q   So that's a particular computer language?

25   A   Yes, it is.

MS042575

1   in Exhibit 255 there is a bold type heading, "OTHER,"

2   and a hyphen, and then it reads "LISTING (33)." To what

3   does that make reference, do you know?

4   A.   That would be the approximate number of pages

5   comprising the -- a listing of the computer program.

6   MR. ANDERSON: I have no further cross-examination.

7

8

9

10   REDIRECT EXAMINATION

11   BY MR. WRIGHT:

12   Q   Mr. Spence, when your program was adopted, what

13   happened after the ball was hit by the bat if it did not

14   hit one of the players positioned in the field?

15   A.   It would be moved across the screen from an initial

16   position near the center of home plate until it reached

17   the furtherest limits of the screen and then disappear.

18   Q   How did the spot get back to the pitcher?

19   A.   When it disappeared from the outer limits of the

20   screen it would reappear instantly or at the same time

21   near the pitcher.

22   Q   How did you know what type of a hit had been made?

23   A.   Well, when the ball left the screen a word would

24   appear on the left-hand screen indicating the value of the

25   hit.

Q   And what do you mean by the value of the hit?

A   It would either be a foul ball, a single, double,

triple or a home run.

Q   What determined which it was?

A   It was in the program. We just picked areas, or

I just picked areas that I thought a particular hit would

be in. For instance, as I recall, a home run was either

to the right or the left of the left fielder, I have

forgotten which.

          MR. WRIGHT: I have no further questions.

                    RECROSS-EXAMINATION

BY MR. ANDERSON:

Q   Just one or two more.

          Referring to the sketch that you have made,

Atari Exhibit 253, you have drawn a circle in the lower

left-hand corner and marked that with a "L," and you have

put X's and a diamond on there. As I understand it,

those various X's and the diamond were drawn sequentially,

one after the other, by the CRT display, is that correct?

A   That is correct.

Q   In what order, if you recall, were they drawn?

A   I think that as best I recall, that I drew the bases

1   first and then the base lines and then the players.

2   Q   Do you recall whether you drew the catcher after

3   the bases and base line or the fielders first?

4   A.   The catcher came first, as I recall, and then the

5   fielders, and I don't recall in what order.

6   Q   Do you recall how long it took the display device

7   to actually generate that complete display in time?

8   A.   No, I never timed it.   It could be calculated

9   from the computer program, but it would be substantially

10   less than a second.

11   Q   By substantially less, do you mean a half a second?

12   A.   I would say on the order of a millisecond, or milli-

13   seconds.

14   Q   Did you in your program draw the ball each time

15   you drew the complete display or did you draw the ball

16   on a different periodicity that you drew the rest of the

17   display?

18   A.   As I recall, the entire display was drawn with the

19   same periodicity, although it might not have been drawn

20   at the same time. By that I mean that the diamond and

21   the players might have been drawn at one time and then

22   a ball drawn at a different time, but they would not have

23   been drawn with the same periodicity.

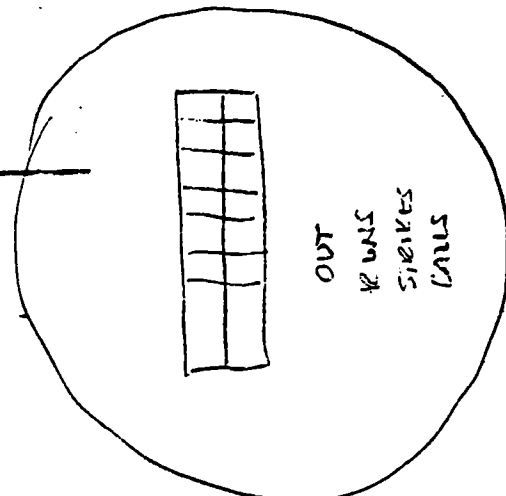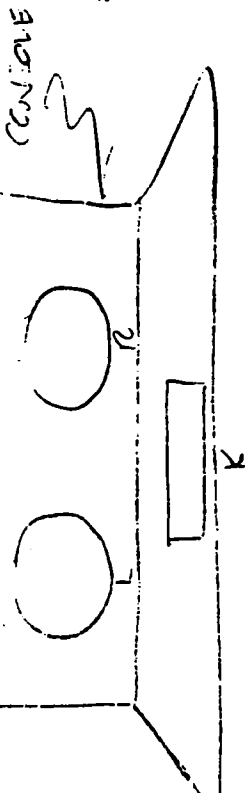24   MR. ANDERSON: I have no further questions.

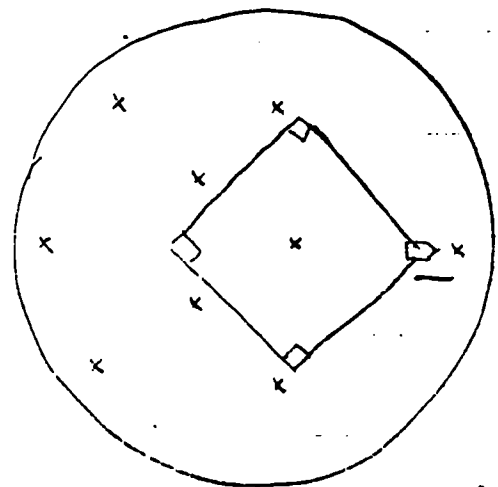25   MR. WRIGHT: That completes the examination.

Atari Fr 253
genice search A
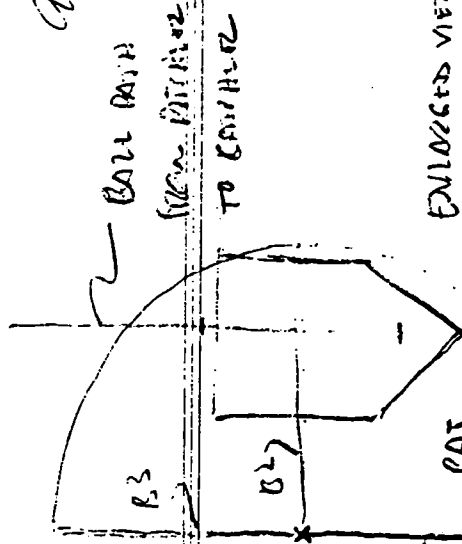
BALL PARK
VIEW PITCHER
TO CATCHER

ENLARGED VIEW
OF HOME PLATE AREA

R3

R2

BAT

EAT

CONSOLE

PITCHER

OUT
RUNS
STRIKES
BALLS

2 77600

MS042584

PROGRAM ABSTRACT COVER SHEET

① User Group: FOCUS ☒   VIM ☐   (INCOSL ☐)

Please complete this form according to the instructions on the reverse side

② Contributing Organization
New York University

Installation Name

City and State

③ Author Identification
T. J. Spence

Programmer/Submitter (up to 19 characters)

Revisor

④ Catalog Identification

ZD	NYU	BAT	
Cl. Code	Org. Code	Program Name	Rev.

⑤ Operating System and Version | **MACE**

⑥ Languages and Dialects (up to 21 characters)
COMPASS PERIPH

⑦ Configuration
6000 | ALSO 6612 or 6602
Computer | Other Information

⑧ Descriptive Title (up to 56 Characters Including Blanks)
6000 SERIES BASABALL GAME

⑨ Program Materials Submitted
Write-Up Page Ct | 2 |
Source Record Count | 2000 |
Source Medium: MT ☐ CD ☒ PT ☐
If MT or PT | | | | No. Tr/L Length

Other (up to 44 characters) — **Listing {33}**

⑩ Date Written
| MAY | 1968 |
Original

| | | |
Revised

⑪ Restricted: No ☒   Yes ☐ (Requires ordering information)
Reason: Classified ☐   Geographic ☐   Other ☐

⑫ Required Library Routines

Cl. Code	Org. Code	Program Name	Rev.

⑬ Entry Point Names

⑭ Original/Revised Program Abstract

This is a demonstration program to "play baseball" on the 6612 {or 6602} display console. The left screen is used to display the action {the field, the ball, and the players}, the right screen is used to display the score, and the keyboard is used to initiate pitching the ball and swinging the bat. The program runs in one PP and the rest of the machine can be used for more conventional computing while the game is being played.

2 77598

⑮ Nature of Revision ☐   Proprietary Ordering Information ☐   Additional Information ☐